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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/510,040	06/21/2005	Thomas Schmehl	080618-0576	4643

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EXAMINER	
SHOMER, ISAAC	
ART UNIT	PAPER NUMBER
1612	

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12/17/2009	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/510,040	SCHMEHL ET AL.	
	Examiner	Art Unit	
	ISAAC SHOMER	1612	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *22 October 2009*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *11-52* is/are pending in the application.

4a) Of the above claim(s) *14-16,19,20 and 27-49* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *11-13,17,18,21-26 and 50-52* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *22 October 2009*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Applicants' arguments, filed 22 October 2009, have been fully considered. Rejections and/or objections not reiterated from previous office actions are hereby withdrawn. The following rejections and/or objections are either reiterated or newly applied. They constitute the complete set presently being applied to the instant application.

Claim Rejections - 35 USC § 112 1st Paragraph Written Description

The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claim 26 stands rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

The Applicant argues that the rejection, with regards to the term "derivatives," as of claim 26, is not proper, because a sufficiently broad selection of possible prostacyclin derivatives is disclosed and the disclosed derivatives can be obtained by conventional methods.

The Examiner does not agree with these arguments. While the Examiner acknowledged the species disclosed in the originally filed disclose prostacyclin derivatives the Examiner does not agree that these species provide a reasonably representative disclosure of useful prostacyclin derivatives generally. The claimed genus is not limited to derivatives with any particular properties or structure, as the term derivative does not limit how divergent the derivative is structurally or functionally from the prostacyclin core structure. The specification discloses only a limited number of species, which are not viewed as being reasonably representative of the genus in its claimed scope because no readily apparent combination of identifying characteristics is provided.

Claim Rejections - 35 USC § 103

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Claims 11-13, 17-18, and 21-25 stand rejected and claim 52 is rejected under 35 U.S.C. 103(a) as being unpatentable over Mihalko et al. (US Patent 5,340,587) in view of Webb et al. (US Patent 5,814,335) in view of Hunt et al (Am J Respir Crit Care Med 2000; 161: 694- 699).

In applicant's reply dated 22 October 2009 (hereafter referred to as applicant's reply), applicant argues that one of ordinary skill in the art would not have been motivated to have combined sphingomyelin, as of Webb, with the liposome comprising

DPPC and cholesterol, as of Mihalko, as the liposome of Webb is a multilamellar liposome, and the liposome of Mihalko is a unilamellar liposome, as of applicant's arguments, page 10, paragraph numbered "1." Applicant argues that the hydrolysis stability of multilamellar liposomes cannot be predicted from the hydrolysis stability of unilamellar liposomes; hence, one of ordinary skill in the art would not have been motivated to have extrapolated Webb's results to multilamellar liposomes, as of applicant's arguments, page 10, paragraph numbered "1."

Applicant further argues that Webb teaches away from modifying the liposome of Mihalko to further include DPPC, as Webb teaches that a liposome comprising sphingomyeling and cholesterol is more stable to acid hydrolysis than a liposome comprising phosphatidylcholine and cholesterol, yet lacking sphingomyelin, as of applicant's arguments, page 10, paragraph labeled "2." Applicant asserts that, based upon Webb's teaching, one of ordinary skill in the art would have been motivated to have replaced phosphatidylcholine with sphingomyelin, as opposed to having added sphingomyelin to the composition, as of page 11, top partial paragraph.

Applicant further argues that one of ordinary skill in the art would not have been motivated to have combined sphingomyelin for the purpose of increasing acid stability because the most acidic pH of a lung of a patient with acute asthma as measured by Hunt is about 5.23, whereas Webb tested the acid stability of sphingomyelin containing liposomes at pH values of 2.0 and 4.0, as of applicant's arguments, page 11, paragraph numbered "3." Applicant therefore argues that the logic upon which the PTO relied upon

for the obviousness rejection is deficient because of the lack of overlap of Webb and Hunt.

In response to applicant's arguments that one of ordinary skill in the art would not have been motivated to have combined Webb with Mihalko because Webb teaches unilamellar vesicles, and Mihalko teaches multilamellar vesicles, the examiner notes that, while the liposomes tested by Webb were unilamellar, Webb defines the term "liposome" to read on a structure comprising one or more lipid-containing membranes, as of Webb, column 5 lines 42-46" and defines the term "liposomes" to read on both unilamellar and multilamellar liposomes, as of Webb, column 2 lines 50-51. As Webb teaches that the presence of sphingomyelin stabilizes a liposome under aqueous conditions (as of page 8 second full paragraph of Examiner's action), one of ordinary skill in the art would have expected that sphingomyelin would have stabilized both unilamellar and multilamellar liposomes.

In response to applicant's arguments that Webb teaches away from the combination with Mihalko, the examiner points to MPEP 2145(X)(D), which states that the nature of teaching away is highly relevant. Based on MPEP 2145(X)(D)(I), which states that "A known or obvious composition does not become patentable simply because it has been described as somewhat inferior to some other product for the same use," the examiner does not understand a disclosure that SM/Chol is better than DSPC/Chol to constitute teaching away. While the examiner admits that, in the present case, Webb teaches that a Sphingomyelin/Cholesterol combination is superior to a phosphatidylcholine/Cholesterol combination in regard to acid hydrolysis, Webb does

not expressly teach one of ordinary skill in the art against the combination of phosphatidylcholine and cholesterol. Hence, Webb does not teach away from a combination with Mihalko, and one of ordinary skill in the art would have been motivated to have combined sphingomyelin, as of Webb, with phosphatidylcholine and cholesterol, as of Mihalko.

In response to applicant's argument that one of ordinary skill in the art would not have been motivated to have combined Hunt, Webb with Mihalko for the purpose of pulmonary administration as Webb teaches acid stability at pH values of 2 and 4, whereas Hunt teaches that affected lungs have a pH value of 5.23, the examiner disagrees with applicant's contention that the lowest single patient pH value is "well above 4.0." As of Hunt, page 695 left column Figure 1, the lowest pH value in the middle column of the figure entitled "Acute Asthma" appears to be well below 4.5 and almost 4.0. In fact, the median lung pH of those individuals with acute asthma appears to be lower than the mean as shown in Figure 1, due to three outlying values with a pH above 6. The examiner also notes Hunt, page 695 right column Figure 2, which shows two acute asthma patients with pH values starting close to 4. Hence, given the fact that the lung pH values of Hunt are acidic, and Webb teaches greater acid stability of liposomes comprising sphingomyelin, one of ordinary skill in the art would have reasonably expected that the addition of sphingomyelin would have predictably rendered the liposomes of Mihalko in view of Webb to be more resistant to hydrolysis at the pH values of lungs affected by acute asthma.

This rejection further applies to newly added claim 52 as Mihalko teaches multilamellar vesicles, as admitted by applicant on page 10, paragraph numbered "1."

Claim 26 stands rejected and claims 50 and 51 are rejected under 35 U.S.C. 103(a) as being unpatentable over Mihalko et al. (US Patent 5,340,587) in view of Webb et al. (US Patent 5,814,335) in view of Hunt et al (Am J Respir Crit Care Med 2000; 161, 694-699), as applied to claim 25 above, and further in view of Morton Jr. et al. (US Patent 4.732,914.

In applicant's arguments, applicant argued that claim 26 is patentable because the claims upon which it depends are patentable, as of page 11, third and fourth full paragraphs of applicant's arguments, and that Morton does not cure these "deficiencies". No further arguments regarding Morton were presented. As the claims upon which claim 26 depend are not patentable, the rejection of claim 26 stands.

This rejection further applies to claims 50 and 51, as Morton is drawn to a prostacyclin. See Examiner's action dated 22 July 2009, page 11, first two paragraphs.

Conclusion

No claim is allowed.

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within

TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to ISAAC SHOMER whose telephone number is (571)270-7671. The examiner can normally be reached on 8:00 AM - 5:00 PM Monday-Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Frederick F. Krass can be reached on (571)272-0580. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/I. S./
Examiner, Art Unit 1612

/Frederick Krass/
Supervisory Patent Examiner, Art Unit 1612